

## PHYSICS COLLOQUIUM

Partially funded by the GSFEI

**Gerald Miller**

UW Department of Physics

**“Shapes of the Proton”**

**Monday, October 25, 2004**

4:00 P.M., Ronald Geballe Auditorium, A-102, PAA

Reception at 3:45 P.M. in the lobby

**Abstract:** Recent Jefferson Laboratory studies of electron-proton scattering have revealed a startling feature that the ratio of the proton electric to magnetic form factor falls with increasing momentum transfer. A form factor is the probability amplitude that a proton can absorb a given amount of momentum and remain a proton. The relativistic nature of our proton three-quark wave function had been used previously in predicting crucial aspects of the data. More recently, this model proton wave function was used to study the shape of the proton. Spin-dependent quark densities are defined as matrix elements of density operators in proton states of definite spin-polarization, and shown to have an infinite variety of non-spherical shapes. For high momentum quarks with spin parallel to that of the proton, the shape resembles that of a peanut. For quarks with anti-parallel spin, the shape is that of a bagel.

**Tuesday, October 26, 2004**

**Particle Theory Seminar**

2:30 PM, Rm. C-421, PAT

Thomas Gregoire

“Gravity mediated supersymmetry breaking in warped brane worlds”

**Condensed Matter Seminar**

4:00 PM, Rm. C-421, PAT

David Baker, UW Biochemistry

“What is Biophysics?”

**Wednesday, October 27, 2004**

**Final Exam**

1:30 PM, Rm. C-520, PAT

Aaron Bostwick, UW Physics

“Impact on CaF<sub>2</sub> Reactivity and Electronic Structure of Photon and Electron Stimulated Fluorine Desorption”

**Thursday, October 28, 2004**

**Astronomy Colloquium**

4:00 PM, Rm. A-102, PAA

Ronald Geballe Auditorium

Reception at 3:45 in the lobby

Bob Kraft, Lick Observatory

“Magnesium Isotopic Abundances Among Globular Cluster Stars: Clues to Star Formation History?”

**ADVANCE Seminar**

4:30 PM, HUB Rm. 310

Donna Nelson, Dept. of Chemistry, University of Oklahoma

“Diversity Among Science and Engineering Faculty at Research Universities”

**Friday, October 29, 2004**

**Organic Chemistry Seminar**

4:30 PM, Rm. 261, Bagley

Donna Nelson, Dept. of Chemistry, University of Oklahoma

“Correlations in Reactions of Alkenes”

# SEMINARS



## October 25-29, 2004